UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C., 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

PC Code: 121027
DP Barcode: 283406
Date: June 19, 2009

MEMORANDUM

SUBJECT: Environmental Fate and Effects Division Review of Ecotoxicity Data for Methoxyfenozide (Avian Reproduction Study).

TO: Richard Gebken, Risk Manager
Mark Suarez, Risk Manager Reviewer
Registration Division (7505P)

FROM: Melissa A. Panger, Ph.D., Biologist
Environmental Risk Branch IV
Environmental Fate and Effects Division (7507P)

6-19-09

APPROVED BY: Elizabeth Behl, Branch Chief
Environmental Risk Branch IV
Environmental Fate and Effects Division (7507P)

M. Echeverria 6/19/09 (for E. Behl)

Please find attached the Data Evaluation Record (DER) for an avian reproduction study for methoxyfenozide (see **Table 1**) that was submitted to fulfill a Conditional Registration Requirement.

TABLE 1. Ecological Effects Studies for Methoxyfenozide.

GUIDE-LINE	MRID	STUDY TITLE	EPA CLASSIFICATION	COMMENTS
71-4a	45652801	Avian reproduction study with bobwhite quail (*Colinus virginianus*)	Acceptable	None

This study is classified by EPA as acceptable. If you have any questions regarding this DER, please do not hesitate to contact us.

Data Evaluation Report on the Reproductive Effects of RH-112,485 Technical (Methoxyfenozide) on Northern Bobwhite (*Colinus virginianus*)

PMRA Submission Number {.....} EPA MRID Number 456528-01

Data Requirement:	PMRA Data Code	{.....}
	EPA DP Barcode	D283406
	OECD Data Point	{.....}
	EPA MRID	456528-01
	EPA Guideline	§71-4a

Test material: RH-112,485 Technical **Purity:** 97.9%
Common name Methoxyfenozide
Chemical name:
IUPAC: *N-tert*-Butyl-*N'*-(3-methoxy-*o*-toluoyl)-3,5-xylohydrazide
CAS: 3-Methoxy-2-methylbenzoic acid 2-(3,5-dimethylbenzoyl)-2-(1,1-dimethylethyl)hydrazide
CAS No.: 161050-58-4
Synonyms: RH-2485 Technical

Primary Reviewer: Christie E. Padova
Staff Scientist, Dynamac Corporation
Signature: Christie E. Padova
Date: 08/24/07

Secondary Reviewer: Teri S. Myers
Senior Scientist, Cambridge Environmental Inc.
Signature: Teri S Myers
Date: 09/11/07

Primary Reviewer: Melissa Panger
EPA/OPP/EFED/ERB -IV
Date: 06/19/09
6-19-09

Reference/Submission No.: {.....}

Company Code	{.....}	[For PMRA]
Active Code	{.....}	[For PMRA]
Use Site Category	{.....}	[For PMRA]
EPA PC Code	121027	

Date Evaluation Completed: {19-06-2009}

CITATION: Mitchell, L.R., *et al.* 2001. RH-112,485 Technical: a reproduction study with the northern bobwhite quail. Unpublished study performed by Wildlife International Ltd., Easton, MD. Laboratory Project No. 129-177. Study submitted by Rohm and Haas Company, Spring House, PA. Study initiated April 3, 2001 and completed November 12, 2001.

DISCLAIMER: This document provides guidance for EPA and PMRA reviewers on how to complete a data evaluation record after reviewing a scientific study concerning the reproductive effects of a pesticide on avian species. It is not intended to prescribe conditions to any external party for conducting this study nor to establish absolute criteria regarding the assessment of whether the study is scientifically sound and whether the study satisfies any applicable data requirements. Reviewers are expected to review and to determine for each study, on a case-by-case basis, whether it is scientifically sound and provides sufficient information to satisfy applicable data requirements. Studies that fail to meet any of the conditions may be accepted, if appropriate; similarly, studies that meet all of the conditions may be rejected, if appropriate. In sum, the reviewer is to take into account the totality of factors related to the test methodology and results in determining the acceptability of the study.

EXECUTIVE SUMMARY

The one-generation reproductive toxicity of RH-112,485 Technical (methoxyfenozide) to 16 pairs per level of 33-week old northern bobwhite quail (*Colinus virginianus*) was assessed over 20 weeks. RH-112, 485 Technical was administered to the birds in the diet at nominal concentrations of 0 (vehicle control), 260, 520, 780, and 1000 mg ai/kg dw diet (corrected for purity). Mean-measured concentrations were <12.5 (<LOD, control), 266, 527, 819, and 1060 mg ai/kg diet, respectively.

The reviewer detected a statistically-significant reduction in female body weight gain at the lowest treatment level, 266 mg a.i./kg. Because this was not a dose-dependent response, the reviewer did not consider the reduction in female body weight gain at the lowest level to be treatment-related or biologically significant. A statistically-significant reduction was also detected in the percentage of 14-day old survivors per eggs set at the 1060 mg a.i./kg level (76% versus 86% for controls). This did appear to be a dose-dependent response (based on the statistical analysis). Therefore the NOAEC for this study is 819 mg a.i./kg-diet and the LOAEC is 1,060 mg a.i./kg-diet based on a reduction in the percentage of 14-day old survivors per eggs set.

This toxicity study is classified as **ACCEPTABLE** and is scientifically sound and does satisfy the guideline requirement for a northern bobwhite quail (*Colinus virginianus*) reproductive toxicity study.

Results Synopsis

Test Organism Size/Age (mean Weight): 33-weeks old; 181-229 g (combined sexes)

NOAEC: 819 mg ai/kg diet
LOAEC: 1060 mg ai/kg diet
Endpoint(s) Affected: Percentage of 14-day old survivors per eggs set

I. MATERIALS AND METHODS

GUIDELINE FOLLOWED: The study protocol was based on procedures outlined in the U.S. EPA *Pesticide Assessment Guidelines,* §71-4; OECD Guideline 206; and ASTM Standard E1062-86. Deviations from Guideline §71-4 included:

1) Mortality of the quail during acclimation was not described.

2) It was not specified if the acetone used as a co-solvent in the premix was allowed to completely evaporate from the test mixes prior to each offering.

3) The average temperature during parental maintenance was 23.90 ± 1.32°C, which is slightly higher than the recommended temperature of about 21°C.

4) Prior to incubation, eggs were stored at 13.6 ± 0.4°C, which is slightly lower than the recommended temperature of 16°C.

5) The number of normal hatchlings was not monitored. In addition, although it was reported that the hatchlings were observed once daily for behavior and mortality during the 14-day maintenance period, no discussion of the health of the hatchlings was addressed in the Results section, and raw data pertaining to any effects observed were not provided.

6) Hatched eggs were removed from the hatcher approximately one to two days later (Day 25 or 26) than recommended by US EPA (Day 24) for this bird species.

7) Although acceptable ambient 7-day feeder trough stability was demonstrated, frozen storage stability data were not provided. Premix batches were prepared every 4 weeks, and stored frozen in plastic bags until needed (see Reviewer's Comments section).

There were no deviations that would affect the scientific soundness or acceptability of this study.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided. This study was conducted in compliance with EPA Good Laboratory Practice Regulations (40 CFR, Part 160) with the following exception: the stability, characterization, and verification of the test substance identity, and the maintenance of records on the test substance are the responsibility of the Study Sponsor.

A. MATERIALS:

1. Test Material RH-112,485 Technical (methoxyfenozide)

Description: White powdered solid

Lot No./Batch No. : Lot No. 1, TD No. 94-134

Purity: 97.9%

Stability of compound

under test conditions: Stability was verified at all treatment levels under actual use conditions. Samples were assessed after 7 days of ambient feeder storage during Week 1. Recoveries were 100-109% of initial measured concentrations.

(OECD recommends water solubility, stability in water and light, pKa, Pow, and vapor pressure of test compound)

Storage conditions of test chemicals: Ambient conditions

Physicochemical properties of Methoxyfenozide.

Parameter	Values	Comments
Water solubility at 20EC	<0.01%	Temp. not reported
Vapor pressure	Not applicable	0% volatility
UV absorption	Not reported	
pKa	Not reported	
Kow	Not reported	

2. Test organism:

Table 1: Test organism.

Parameter	Details	Remarks *Criteria*
Species (common and scientific names):	Northern bobwhite quail (*Colinus virginianus*)	Birds were from the same hatch, and were phenotypically indistinguishable from wild birds. *Recommended species include a wild waterfowl species, preferably the mallard (Anas platyrhynchos) or an upland game species, preferably the northern bobwhite (Colinus virginianus)*
Age at Study Initiation:	33 weeks old	It was stated that birds were approaching their first breeding season and had not been used in any previous testing. *Birds approaching their first breeding season should be used.*
Body Weight: (mean and range)	Males: Overall range (n=80) 183 to 229 g, with group means of 202 to 211 g.	Body weights were recorded at weeks 0, 2, 4, 6, 8, and 20 (adult termination).

Parameter	Details	Remarks *Criteria*
	Females: Overall range (n=80) of 181 to 226 g, with group means of 202 to 211 g.	*Body weights should be recorded at test initiation and at biweekly intervals up to week eight or up to the onset of egg laying and at termination.*
Source:	Trace Pheasantry 288 Levengood Road Douglassville, PA 19508	*All birds should be from the same source.*

B. STUDY DESIGN:

1. Experimental Conditions

a. Range-finding study: None reported. The dietary concentrations were selected in consultation with the Sponsor and based upon additional toxicity information provided by the Sponsor.

b. Definitive Study

Table 2: Experimental Parameters.

Parameter	Details	Remarks *Criteria*
Acclimation period: Conditions (same as test or not): Feeding: Health (any mortality observed):	15 days Same as test Wildlife International Ltd. Game Bird Ration formulated by Agway Inc. and tap water from the town of Easton were provided *ad libitum*. Mortality not reported.	The study author reported that birds exhibiting abnormal behavior or debilitating physical injuries (during acclimation) were not used for the test. During acclimation, birds received ≤8 hours of light/day. *Recommended observation period includes a 2-3 week health observation period prior to selection of birds for treatment. Generally, birds should be healthy without excess mortality. Feeding should be ad libitum, and sickness, injuries or mortality should be noted*
Test duration		

Parameter	Details	Remarks *Criteria*
pre-laying exposure: egg-laying exposure: withdrawal period, if used:	10 weeks 10 weeks N/A	***Recommended pre-laying exposure duration:*** *At least 10 weeks prior to the onset of egg-laying.* ***Recommended exposure duration with egg-laying:*** *At least 10 weeks.* ***Recommended withdrawal period:*** *If reduced reproduction is evident, a withdrawal period of up to 3 weeks should be added to the test phase.*
Pen (for parental and offspring) size: construction materials: number:	Parents (one pair) were housed in battery cages measuring 27 x 51 x 20/25 cm high (sloping floors). Offspring (by set and group) were housed in 72 x 90 x 23 cm high battery brooders. Parental and offspring pens were constructed of galvanized wire mesh and galvanized sheeting. 16 parental pens/treatment level. Hatchlings were group-housed according to the appropriate parental concentration.	*Pens* *Pens should have adequate room and be arranged to prevent cross-contamination.* *Materials* *Recommended materials include nontoxic material and nonbinding material, such as galvanized steel.* *Number* *At least 5 replicate pens should be used for mallards housed in groups of 7. For other arrangements, at least 12 pens should be used, but considerably more may be used if birds are kept in pairs. Chicks should be housed according to parental grouping.*
Number of birds per pen (male:female)	2 birds/pen (1 male:1 female)	*One male and one female per pen should be used. For quail, one male and two females should be used. For ducks, two males and five females should be used.*
Number of pens per group/treatment negative control: vehicle control: treated:	 N/A 16 pens 16 pens/treatment	*At least 12-16 pens should be used, but considerably more if birds are kept in pairs.*

Parameter	Details	Remarks *Criteria*
Test concentrations (mg ai/kg diet) nominal: measured:	0 (vehicle control), 260, 520, 780, and 1000 mg ai/kg diet <12.5 (<LOD, control), 266, 527, 819, and 1060 mg ai/kg diet	Dietary concentrations were adjusted for purity of the test substance. Measured concentrations were determined at all levels during Weeks 2, 3, 4, 8, 12, 16, and 20. Mean-measured concentrations had coefficients of variation of ≤5.60% indicating consistency among the samples. Mean-measured concentrations were not corrected for procedural recoveries. *Recommended test concentrations include at least two concentrations other than the control; three or more will provide a better statistical analysis. The highest test concentrations should show a significant effect or be at or above the actual or expected field residue level.*
Maximum labeled field residue anticipated and source of information:	Not specified	*The highest test concentrations should show a significant effect or be at or above the actual or expected field residue level. The source (i.e., maximum label rate in lb ai/A and ppm), label registration no., label date, and site should be cited*]
Solvent/vehicle, if used type: amount:	Acetone and corn oil 0.4 and 0.2%, respectively (v:w)	It was not reported if the acetone was allowed to completely evaporate. *Recommended solvents include corn oil or other appropriate vehicle not more than 2% of diet by weight*

Parameter	Details	Remarks *Criteria*
Was detailed description and nutrient analysis of the basal diet provided? (Yes/No)	Yes. The basal ration contained at least 27% protein and 2.5% fat, and no more than 5% fiber. The diet was supplemented with limestone to provide necessary calcium (approximately 3% final) for proper eggshell formation.	Offspring were fed basal ration without the addition of test substance or limestone. In addition, all offspring received a water-soluble vitamin and electrolyte mix (Durvet Inc., Blue Springs, MO) in their water. Neither the adults nor offspring received any form of medication in their feed or water during the test. *A commercial breeder feed or an equivalent that is appropriate for the test species is recommended.*
Preparation of test diet	The appropriate amount of test material was combined with acetone, and stirred for at least 2 minutes, then sonicated for approx. 10 minutes. Corn oil was then added and the mixture stirred for at least an additional 2 minutes. This mixture was then quantitatively transferred (using acetone) to a mixing bowl containing a portion of basal ration, and the treated feed was mixed for approx. 15 minutes using a Hobart mixer. The remainder of basal ration (used to prepare the premixes) was added and the feed mixed an additional 10 minutes. Premixes were prepared approximately every 4 weeks (five sets prepared in total), and if not used immediately after mixing, were stored frozen in plastic bags. As needed, the appropriate premix was combined with additional basal ration and limestone and mixed for approx. 10 minutes in a Hobart mixer.	*A premixed diet containing the test substance should be mechanically mixed with basal diet. If an evaporative vehicle is used, it should be completely evaporated prior to feeding.*

Parameter	Details	Remarks *Criteria*
Indicate whether stability and homogeneity of test material in diet determined (Yes/No)	Yes	
Were concentrations in diet verified by chemical analysis?	Yes	
Did chemical analysis confirm that diet was stable?	Yes, for ambient 7-day feeder storage. Frozen storage stability data were not generated (premix batches were prepared every 4 weeks and were stored frozen until needed).	Stability was assessed in treated feed prepared at all treatment levels after 7 days of ambient feeder storage during Week 1. Recoveries averaged 103, 100, 108, and 109% of initial concentrations for the 260, 520, 780, and 1000 mg ai/kg diet levels, respectively. Fresh diets were offered every week (Tuesday) during the definitive study.
and homogeneous?	Yes	Homogeneity was assessed in treated feed prepared on Day 0 of Week 1 at all test levels. Six samples per level were collected: one sample per side from the top, middle, and bottom of the batch. Calculated coefficients of variations (CV=RSD) were 1.63, 5.85, 3.39, and 5.45% for the 260, 520, 780, and 1000 mg ai/kg diet levels, respectively.
Feeding and husbandry	Feeding and husbandry conditions appeared to be adequate, given guideline recommendations.	

Parameter	Details	Remarks *Criteria*
Test conditions (pre-laying) temperature: relative humidity: photoperiod:	23.90 ± 1.32°C 66.23 ± 13.48% ≤8 hr light/day up through Week 10; 17 hr light/day thereafter.	Temperature and humidity were for the adult room during the entire study. The air handling system provided up to 15 room air volumes every hour. Light intensity was approximately 189 lux (*ca.* 18 foot candles). *Recommended temperature: about 21EC (70EF)* *Recommended relative humidity: about 55%* *Recommended lighting* *First 8 weeks: 7 h per day.* *Thereafter: 16-17 h per day.* *At least 6 foot-candles are recommended at bird level.*
Egg Collection and Incubation		
Egg collection and storage collection interval: storage temperature: storage humidity:	Daily 13.6 ± 0.4°C 70 ± 8%	*Eggs should be collected daily; recommended egg storage temperature is approximately 16EC (61EF); recommended humidity is approximately 65%.* *Recommended collection interval: daily*
Were eggs candled for cracks prior to setting for incubation?	Yes	*Eggs should be candled on day 0*
Were eggs set weekly?	Yes	All eggs to be incubated were fumigated with formaldehyde gas for about 2 hours, to reduce the possibility of pathogen contamination prior to incubation.
When candling was done for fertility?	Eggs were candled again on Days 11-12 (embryo viability) and 21 (embryo survival).	*Quail: approx. day 11* *Ducks: approx. day 14*
When the eggs were transferred to the hatcher?	Day 21	*Bobwhite: usually day 21* *Mallard: usually day 23*

Parameter	Details	Remarks *Criteria*
Hatching conditions temperature: humidity: photoperiod:	 37.2 ± 0.4°C Approx. 77% 16 hours light/8 hours dark (hatchlings)	 *Recommended temperature is 39EC (102EF)* *Recommended humidity is 70%*
Day the hatched eggs were removed and counted	Day 25 or 26	*Eggs for bobwhite should be removed on day 24; for mallard on day 27*
Were egg shells washed and dried for at least 48 hrs before measuring?	Yes	
Egg shell thickness no. of eggs used: intervals: mode of measurement:	 One egg was collected (when available) from each odd numbered cage during odd numbered weeks and from each even numbered cage during the even numbered weeks. Once weekly throughout the egg laying period. Five points around the equatorial circumference were measured to the nearest 0.002 mm.	Egg shell strength was determined prior to thickness. Strength was measured using a Chatillon® DFA10 Digital Force Gauge set at a travel rate of approximately 4 cm per minutes. *Newly hatched eggs should be collected at least once every two weeks. Thickness of the shell plus membrane should be measured to the nearest 0.01 mm* with 3 - *4 measurements per shell.*
Reference chemical, if used	None used	

2. Observations:

Table 3: Observations.

Parameter	Details	Remarks
Parameters measured		
Parental (mortality, body weight, mean feed consumption) Egg collection and subsequent development (no. of eggs laid, no. of eggs cracked, shell thickness, no. of eggs set, no. of viable embryos, no. of live 3 week embryos, no. hatched, no. of 14-day survivors, average weight of 14-d old survivors, mortality, gross pathology, others)	- mortality - body weight - food consumption - signs of toxicity - necropsy - eggs laid - eggs cracked - egg shell strength - egg shell thickness - eggs set - viable embryos - live 3-week embryos - number of hatchlings - hatchling body weight - number of 14-day-old survivors - 14-day-old survivor body weight - signs of toxicity of hatchlings	All adult birds were subjected to gross necropsy. *Recommended endpoints measured include:* • *Eggs laid/pen* • *Eggs cracked/pen* • *Eggs set/pen* • *Viable embryos/pen* • *Live 3-week embryos/pen* • *Normal hatchlings/pen* • *14-day-old survivors/pen* • *14-day-old survivors/pen* • *Weights of 14-day-old* • *survivors (mean per pen)* • *Egg shell thickness* • *Food consumption (mean per pen)* • *Initial and final body weight (mean per pen)*
Indicate if the test material was regurgitated	No indications of dietary regurgitation.	
Observation intervals (for various parameters)	Parental and hatchling mortality and parental signs of toxicity were recorded once daily. Parental body weights were recorded at weeks 0 (test initiation), 2, 4, 6, 8, and 20 (adult termination). Parental food consumption was measured weekly throughout the test.	*Body weights and food consumption should be measured at least biweekly*
Were raw data included?	Yes	

II. RESULTS AND DISCUSSION:

A. MORTALITY:

No treatment-related adult mortality occurred at any treatment level. However, three incidental mortalities occurred in the 260 mg ai/kg group, and one incidental mortality occurred in the 520 mg ai/kg group. No other mortalities were observed during the study.

The first mortality in the 260 mg ai/kg group was a female that was found dead during Week 2, without having exhibited prior clinical signs. Necropsy revealed pale breast muscle, spleen, and kidneys; a pale and friable liver; and a subcapsular hematoma on the left lobe of the liver, with a large mass of coagulated blood over the

left lobe of the liver in the abdominal cavity. Necropsy of the pen-mate revealed small testes, but was otherwise unremarkable. The second mortality in the 260 mg ai/kg group was a male that was found dead during Week 17, without having exhibited prior clinical signs. Abrasions with hematomas were noted on both wings at necropsy. Internally, the left femur was fractured. No other lesions were noted, and necropsy of the pen-mate was unremarkable. The third mortality in the 260 mg ai/kg group was a female that was found dead during Week 18; lesions were noted on both feet prior to death. Internal examination revealed pale breast muscle and kidneys; a pale and friable liver; and frank hemorrhage in the abdominal cavity. Necropsy of the pen-mate revealed areas of hyperemia in the intestinal tract, but was otherwise unremarkable.

The single mortality in the 520 mg ai/kg group was a female that was found dead during Week 12, without having exhibited prior clinical signs. Wet chin feathers, and feed mixed with the saliva were observed upon external examination. Internally, the kidneys were pale and the liver was pale and mottled. The abdominal cavity contained lesions pathognomonic of egg yolk peritonitis and small amounts of frank hemorrhage on the kidneys. Necropsy of the pen-mate was unremarkable.

Based on the nature of the lesions observed at necropsy, none the mortalities were considered related to treatment. The NOAEC for adult mortality was 1000 mg ai/kg diet.

Table 4: Effect of RH-112,485 Technical (Methoxyfenozide) on Mortality of Northern Bobwhite.

Treatment Mean-measured (and Nominal) Concentrations, mg ai/kg diet	Observation Period					
	Week 7		Week 14		Week 20	
	No. Dead		No. Dead		No. Dead	
	Male	Female	Male	Female	Male	Female
Control	0	0	0	0	0	0
266 (250)	0	1	0	1	1	2
527 (520)	0	0	0	1	0	1
819 (780)	0	0	0	0	0	0
1060 (1000)	0	0	0	0	0	0

B. REPRODUCTIVE AND OTHER ENDPOINTS:

Abnormal Effects/Behavior: No overt signs of toxicity were observed in any treatment group, and except for incidental clinical findings, all birds appeared normal throughout the study. Incidental clinical observations that are normally associated with injuries and pen-wear included head, back and foot lesions, neck curl, feather loss, and bruising. Other incidental observations noted included lameness, lower limb weakness, a ruffled appearance, and lethargy. These effects were typically associated with the incidental injuries. The NOAEC for clinical signs of toxicity was 1000 mg ai/kg diet.

Food Consumption: There were no treatment-related effects upon feed consumption at any test level. Compared to the control, there were no statistically-significant differences in feed consumption at the 780 mg ai/kg level. However, very slight, but statistically-significant increases in feed consumption were observed at the 260 mg ai/kg level (17 versus 16 g/bird/day; $p<0.01$) and 1000 mg ai/kg level (17 versus 16 g/bird/day; $p<0.05$) during Week 2, and a very slight, statistically-significant decrease was observed at the 520 mg ai/kg level (13 versus 14 g/bird/day; $p<0.05$) during Week 3. The differences were slight and were neither concentration dependent nor consistent during the test period. Therefore, the differences were considered unrelated to treatment. Overall feed consumption during the exposure period averaged 16.45-17.50 g/bird/day

for all control and treatment levels (reviewer-calculated). The NOAEC for feed consumption was 1000 mg ai/kg diet.

Body Weight: No apparent treatment-related effects on body weight were observed at any treatment level, with no statistically significant differences observed. The NOAEC for adult body weight was 1000 mg ai/kg diet.

Necropsy: There were no macroscopic findings at necropsy that were considered related to treatment.

Reproductive Effects: There were no treatment-related effects on egg production or quality, embryonic survival, or on hatchling survival, clinical effects, or body weights, with no statistically-significant differences observed when compared to the control for any reproductive endpoint at any treatment level. The subsequent NOAEC for all reproductive endpoints was 1000 mg ai/kg diet.

Table 5: Reproductive and Other Parameters (nominal concentrations; study author-reported).

Parameter	Control	260	520	780	1000	NOAEC/ LOAEC
Eggs laid/pen	40	31	36	35	40	N/A
Eggs laid/hen/day	0.58	0.44	0.52	0.50	0.57	N/A
Eggs cracked	22	35	10	10	11	N/A
Eggs set	544	313	463	486	555	N/A
Shell strength (N ± SD)	9.929 ± 1.551	9.470 ± 1.936	9.949 ± 1.611	10.106 ± 1.297	9.868 ± 1.122	1000 mg/kg >1000 mg/kg
Shell thickness (mm ∀ SD)	0.227 ± 0.017	0.225 ± 0.017	0.232 ± 0.014	0.228 ± 0.013	0.229 ± 0.016	1000 mg/kg >1000 mg/kg
Viable embryos	508	289	433	451	490	N/A
Live 3-week embryos	507	285	432	448	488	N/A
No. of hatchlings/hen[(a)]	30.3	20.9	27.1	26.7	28.1	N/A
No. of normal hatchlings	485	272	407	427	449	N/A
Hatchling weight (g ± SD)	7 ± 0	6 ± 0	7 ± 0	7 ± 1	7 ± 0	1000 mg/kg >1000 mg/kg
14-day old survivors	467	265	399	415	435	N/A
14-day old survivors weight (g ± SD)	28 ± 2	28 ± 3	28 ± 3	29 ± 5	29 ± 3	1000 mg/kg >1000 mg/kg
Mean food consumption (g/bird/day)[(a)]	17.35	17.05	16.45	17.50	17.50	1000 mg/kg >1000 mg/kg
Weight (g) of parent females at test initiation: at Week 8: at test termination:	203 215 249	203 213 238	202 212 243	211 225 250	204 213 246	1000 mg/kg >1000 mg/kg
Weight (g) of parent males						

Parameter	Control	260	520	780	1000	NOAEC/ LOAEC
at test initiation: at Week 8: at test termination:	202 201 217	208 206 229	203 201 221	211 211 229	202 204 224	1000 mg/kg >1000 mg/kg
Gross pathology	No treatment-related abnormalities observed.					

N/A = Not statistically-analyzed.
[a] Reviewer-calculated.

C. REPORTED STATISTICS:

The following variables were statistically analyzed: adult body weight, adult feed consumption, eggs laid of maximum laid, eggs cracked of eggs laid, viable embryos of eggs set, live 3-week embryos of viable embryos, hatchlings of 3-week embryos, 14-day old survivors of hatchlings, hatchlings of eggs set, 14-day old survivors of eggs set, hatchlings of maximum set, 14-day old survivors of maximum set, egg shell thickness and egg strength, and offspring body weight (0 and 14 days).

Each of the treatment groups was compared to the control group using an analysis of variance (ANOVA) followed by Dunnett's Multiple Comparison Procedure. Sample units were the individual pens within each experimental group, except adult body weights, where the sample unit was the individual bird. Percentage data were arcsine square root transformed prior to analysis. Nominal concentrations were used for all estimations.

D. VERIFICATION OF STATISTICAL RESULTS:

Statistical Method: Analysis was conducted using "chicks.sas" (Ver. 3; March 2002), a SAS program provided by EFED/OPP/USEPA. Data for all endpoints were examined graphically using box plots to determine if they exhibited a dose-dependent response, which was ultimately used to select the multiple comparison test to detect LOAEC and NOAEC. Data for each endpoint were tested to determine if their distributions were normal and if their variances were homogeneous using Shapiro-Wilk's and Levene's tests, respectively. Data that satisfied these assumptions were subjected to Dunnett's and William's tests and data that did not satisfy these assumptions were subjected to the non-parametric MannWhitney-U (with a Bonferroni adjustment) and Jonckheere's tests. Data for dead birds were excluded from the analyses. See Appendix I for output of reviewer's statistical verification and graphs for affected endpoints to support any reviewer-generated conclusions that may differ from those reported in the study.

The reviewer detected a statistically-significant reduction in female body weight gain at the lowest treatment level, 266 mg a.i./kg. Because this was not a dose-dependent response, the reviewer did not consider the reduction in female body weight gain at the lowest level to be treatment-related or biologically significant. A statistically-significant reduction was also detected in the percentage of 14-day old survivors per eggs set at the 1060 mg a.i./kg level (76% versus 86% for controls). This did appear to be a dose-dependent response (based on the statistical analysis). Therefore the NOAEC for this study is 819 mg a.i./kg-diet and the LOAEC is 1,060 mg a.i./kg-diet based on a reduction in the percentage of 14-day old survivors per eggs set.

NOAEC: 819 mg ai/kg
LOAEC: 1060 mg ai/kg
Most Sensitive Endpoint(s): Percentage of 14-day old survivors per eggs set

Table 6: Reproductive and Other Parameters (mean-measured concentrations; reviewer-reported).

Parameter	Control	266 mg ai/kg	527 mg ai/kg	819 mg ai/kg	1060 mg ai/kg	NOAEC/ LOAEC
Eggs laid/pen	40	31	36	35	40	1060 mg ai/kg >1060 mg ai/kg
Eggs cracked/pen	1.4	2.7	0.7	0.6	0.7	1060 mg ai/kg >1060 mg ai/kg
Eggs not cracked/eggs laid (%)	96.6	91.4	98.3	97.6	98.7	1060 mg ai/kg >1060 mg ai/kg
Eggs set/pen	34	24.1	30.9	30.4	34.7	1060 mg ai/kg >1060 mg ai/kg
Shell thickness	0.23	0.22	0.23	0.23	0.23	1060 mg ai/kg >1060 mg ai/kg
Eggs set/eggs laid (%)	83.9	77.3	82.6	84.2	86.9	1060 mg ai/kg >1060 mg ai/kg
Viable embryos/pen	31.8	22.2	28.9	28.2	30.6	1060 mg ai/kg >1060 mg ai/kg
Viable embryos/eggs set (%)	94	90	93	92	85	1060 mg ai/kg >1060 mg ai/kg
Live embryos/pen	31.7	21.9	28.8	28.0	30.5	1060 mg ai/kg >1060 mg ai/kg
Live embryos/viable embryos (%)	100	98	100	100	100	1060 mg ai/kg >1060 mg ai/kg
No. of hatchlings/pen	30.3	20.9	27.1	26.7	28.1	1060 mg ai/kg >1060 mg ai/kg
No. of hatchlings/eggs laid (%)	75.1	64.6	72.1	73.6	68.4	1060 mg ai/kg >1060 mg ai/kg
No. of hatchlings/eggs set (%)	90	83	87	88	79	1060 mg ai/kg >1060 mg ai/kg
No. of hatchlings/live embryos (%)	95	94	94	96	92	1060 mg ai/kg >1060 mg ai/kg
Hatchling survival/pen	29.2	20.4	26.6	25.9	27.2	1060 mg ai/kg >1060 mg ai/kg
Hatchling survival/eggs set (%)	86	80	86	82	76*	819 mg ai/kg 1060 mg ai/kg
Hatchling survival/no. of hatchlings (%)	95.7	96.8	98.2	94.1	97.1	1060 mg ai/kg >1060 mg ai/kg
Hatchling weight (g)	6.8	6.3	6.6	6.6	6.5	1060 mg ai/kg >1060 mg ai/kg

Survivor weight (g)	28.3	27.9	27.7	28.8	28.7	1060 mg ai/kg >1060 mg ai/kg
Mean food consumption (g/bird/day)	17.4	16.8	16.3	17.6	17.4	1060 mg ai/kg >1060 mg ai/kg
Male weight gain (g)	14.7	19.8	18.3	18.6	21.9	1060 mg ai/kg >1060 mg ai/kg
Female weight gain (g)	46.6	35.4*	41.5	38.9	42.1	1060 mg ai/kg >1060 mg ai/kg

* Statistically different from the control at $p<0.05$.

E. STUDY DEFICIENCIES:

This study is considered to be scientifically sound and the deficiencies listed above (Section I) were not deemed by the reviewer to affect the scientific validity of the study. Additionally, despite the lack of frozen stability data, it could be determined (by the reviewer) from the verification of RH-112,485 concentration data provided in Table 5 of Appendix III and from the diet preparation description provided in Appendix II that samples from Weeks 4, 12, 16, and 20 were analyzed for concentration verification after a maximum of 22 days of frozen (premix) storage. As results from the concentration verification analyses indicated that RH-112,485 was stable in premixes stored frozen for 22 days, the failure to provide frozen storage stability data is not considered to have a significant effect on the integrity of the study.

F. REVIEWER=S COMMENTS:

The reviewer's conclusions did not agree with those of the study author. The reviewer's analysis detected a slight, but significant ($p=0.043$) reduction in female weight gain at the lowest treatment level. Because this was not a dose-dependent response, the reviewer did not consider the reduction in female body weight gain at the lowest level to be treatment-related or biologically significant. Additionally, the reviewer's statistical verification detected a significant reduction in the ratio of 14-day old survivors/eggs set at the 1060 mg a.i./kg level. As a result, the NOAEC in this study is 819 mg a.i./kg-diet and the LOAEC is 1060 mg ai/kg-diet.

Matrix blanks were fortified at 25.0, 600, and 1200 mg ai/kg diet and analyzed concurrently with sample analysis. Mean recoveries ranged from 101 to 103% of nominal concentrations. Sample concentrations were not corrected for mean procedural recoveries.

Treated feed samples were extracted with methanol, and extracts were analyzed for RH-112,485 using HPLC equipped with variable wavelength detection (VWD). The analytical LOD and LOQ were 12.5 and 25 mg ai/kg diet, respectively.

In-life dates were April 10 – October 8, 2001.

G. CONCLUSIONS:

This toxicity study is classified as **ACCEPTABLE** and is scientifically sound and does satisfy the guideline requirement for a northern bobwhite quail (*Colinus virginianus*) reproductive toxicity study.

NOAEC: 819 mg ai/kg diet
LOAEC: 1060 mg ai/kg diet
Endpoint(s) Affected: Percentage of 14-day old survivors per eggs set

III. REFERENCES:

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Dunnett, C.W. 1964. New Tables for Multiple Comparisons with a Control. *Biometrics* 20: 482-491.

APPENDIX I. OUTPUT OF REVIEWER'S STATISTICAL VERIFICATION:

Bobwhite repro, Methoxyfenozide, MRID 456528-01
PRINTOUT OF RAW DATA

Obs	TRT	EL	EC	ENC_EL	ES	ES_EL	VE	VE_ES	LE	LE_VE	NH	NH_EL	NH_ES
1	Ctrl	49	2	95.92	39	79.59	32	82.05	32	100.00	31	63.27	79.49
2	Ctrl	59	0	100.00	54	91.53	42	77.78	42	100.00	39	66.10	72.22
3	Ctrl	29	0	100.00	25	86.21	24	96.00	24	100.00	24	82.76	96.00
4	Ctrl	21	2	90.48	16	76.19	16	100.00	16	100.00	14	66.67	87.50
5	Ctrl	23	0	100.00	19	82.61	18	94.74	18	100.00	17	73.91	89.47
6	Ctrl	39	2	94.87	32	82.05	32	100.00	32	100.00	32	82.05	100.00
7	Ctrl	40	1	97.50	34	85.00	33	97.06	33	100.00	31	77.50	91.18
8	Ctrl	43	1	97.67	37	86.05	35	94.59	35	100.00	30	69.77	81.08
9	Ctrl	47	1	97.87	41	87.23	40	97.56	40	100.00	39	82.98	95.12
10	Ctrl	36	0	100.00	31	86.11	31	100.00	31	100.00	31	86.11	100.00
11	Ctrl	45	1	97.78	40	88.89	37	92.50	37	100.00	33	73.33	82.50
12	Ctrl	38	1	97.37	32	84.21	32	100.00	32	100.00	32	84.21	100.00
13	Ctrl	38	5	86.84	29	76.32	28	96.55	28	100.00	25	65.79	86.21
14	Ctrl	52	1	98.08	44	84.62	44	100.00	43	97.73	43	82.69	97.73
15	Ctrl	28	0	100.00	24	85.71	19	79.17	19	100.00	19	67.86	79.17
16	Ctrl	59	5	91.53	47	79.66	45	95.74	45	100.00	45	76.27	95.74
17	Dose1	39	6	84.62	29	74.36	29	100.00	29	100.00	28	71.79	96.55
18	Dose1	42	3	92.86	35	83.33	35	100.00	35	100.00	32	76.19	91.43
19	Dose1	44	6	86.36	32	72.73	28	87.50	27	96.43	27	61.36	84.38
20	Dose1	.	.	.	.	.	.	.	.	.	.	.	.
21	Dose1	32	0	100.00	29	90.63	29	100.00	29	100.00	26	81.25	89.66
22	Dose1	.	.	.	.	.	.	.	.	.	.	.	.
23	Dose1	37	3	91.89	29	78.38	29	100.00	28	96.55	28	75.68	96.55
24	Dose1	.	.	.	.	.	.	.	.	.	.	.	.
25	Dose1	41	0	100.00	37	90.24	37	100.00	36	97.30	35	85.37	94.59
26	Dose1	20	6	70.00	10	50.00	10	100.00	9	90.00	8	40.00	80.00
27	Dose1	10	0	100.00	8	80.00	8	100.00	8	100.00	8	80.00	100.00
28	Dose1	24	1	95.83	19	79.17	9	47.37	9	100.00	9	37.50	47.37
29	Dose1	6	1	83.33	4	66.67	3	75.00	3	100.00	2	33.33	50.00
30	Dose1	11	0	100.00	9	81.82	7	77.78	7	100.00	7	63.64	77.78
31	Dose1	52	9	82.69	38	73.08	37	97.37	37	100.00	37	71.15	97.37
32	Dose1	40	0	100.00	34	85.00	28	82.35	28	100.00	25	62.50	73.53
33	Dose2	.	.	.	.	.	.	.	.	.	.	.	.
34	Dose2	56	0	100.00	51	91.07	50	98.04	50	100.00	49	87.50	96.08
35	Dose2	42	1	97.62	35	83.33	35	100.00	34	97.14	29	69.05	82.86
36	Dose2	52	4	92.31	41	78.85	41	100.00	41	100.00	38	73.08	92.68
37	Dose2	32	3	90.63	25	78.13	25	100.00	25	100.00	24	75.00	96.00
38	Dose2	16	0	100.00	11	68.75	7	63.64	7	100.00	6	37.50	54.55
39	Dose2	43	0	100.00	39	90.70	30	76.92	30	100.00	27	62.79	69.23
40	Dose2	33	2	93.94	27	81.82	20	74.07	20	100.00	19	57.58	70.37
41	Dose2	29	0	100.00	24	82.76	23	95.83	23	100.00	23	79.31	95.83
42	Dose2	59	0	100.00	54	91.53	51	94.44	51	100.00	49	83.05	90.74
43	Dose2	43	0	100.00	36	83.72	36	100.00	36	100.00	35	81.40	97.22
44	Dose2	26	0	100.00	22	84.62	22	100.00	22	100.00	21	80.77	95.45
45	Dose2	39	0	100.00	35	89.74	31	88.57	31	100.00	29	74.36	82.86
46	Dose2	37	0	100.00	32	86.49	32	100.00	32	100.00	28	75.68	87.50
47	Dose2	5	0	100.00	3	60.00	3	100.00	3	100.00	3	60.00	100.00
48	Dose2	32	0	100.00	28	87.50	27	96.43	27	100.00	27	84.38	96.43
49	Dose3	62	1	98.39	55	88.71	55	100.00	55	100.00	55	88.71	100.00
50	Dose3	59	0	100.00	54	91.53	49	90.74	48	97.96	46	77.97	85.19
51	Dose3	18	1	94.44	14	77.78	14	100.00	14	100.00	14	77.78	100.00

52	Dose3	40	0	100.00	36	90.00	36	100.00	36	100.00	36	90.00	100.00
53	Dose3	19	2	89.47	14	73.68	12	85.71	12	100.00	11	57.89	78.57
54	Dose3	44	0	100.00	39	88.64	36	92.31	36	100.00	35	79.55	89.74
55	Dose3	30	3	90.00	24	80.00	17	70.83	17	100.00	17	56.67	70.83
56	Dose3	5	0	100.00	3	60.00	3	100.00	3	100.00	3	60.00	100.00
57	Dose3	26	1	96.15	22	84.62	21	95.45	21	100.00	19	73.08	86.36
58	Dose3	30	1	96.67	25	83.33	23	92.00	23	100.00	23	76.67	92.00
59	Dose3	9	0	100.00	8	88.89	7	87.50	7	100.00	6	66.67	75.00
60	Dose3	39	0	100.00	34	87.18	34	100.00	34	100.00	32	82.05	94.12
61	Dose3	32	1	96.88	27	84.38	19	70.37	19	100.00	19	59.38	70.37
62	Dose3	38	0	100.00	33	86.84	33	100.00	33	100.00	33	86.84	100.00
63	Dose3	57	0	100.00	52	91.23	47	90.38	47	100.00	41	71.93	78.85
64	Dose3	51	0	100.00	46	90.20	45	97.83	43	95.56	37	72.55	80.43
65	Dose4	25	0	100.00	21	84.00	19	90.48	19	100.00	18	72.00	85.71
66	Dose4	5	0	100.00	4	80.00	2	50.00	2	100.00	2	40.00	50.00
67	Dose4	42	0	100.00	38	90.48	38	100.00	37	97.37	36	85.71	94.74
68	Dose4	36	0	100.00	32	88.89	21	65.63	21	100.00	21	58.33	65.63
69	Dose4	36	0	100.00	32	88.89	24	75.00	24	100.00	20	55.56	62.50
70	Dose4	32	0	100.00	27	84.38	18	66.67	18	100.00	15	46.88	55.56
71	Dose4	64	3	95.31	56	87.50	50	89.29	50	100.00	43	67.19	76.79
72	Dose4	39	0	100.00	34	87.18	21	61.76	21	100.00	18	46.15	52.94
73	Dose4	49	3	93.88	42	85.71	39	92.86	39	100.00	37	75.51	88.10
74	Dose4	43	0	100.00	38	88.37	35	92.11	35	100.00	34	79.07	89.47
75	Dose4	51	1	98.04	45	88.24	45	100.00	44	97.78	41	80.39	91.11
76	Dose4	32	1	96.88	27	84.38	25	92.59	25	100.00	25	78.13	92.59
77	Dose4	42	0	100.00	37	88.10	35	94.59	35	100.00	31	73.81	83.78
78	Dose4	50	1	98.00	44	88.00	44	100.00	44	100.00	43	86.00	97.73
79	Dose4	30	0	100.00	27	90.00	27	100.00	27	100.00	24	80.00	88.89
80	Dose4	59	2	96.61	51	86.44	47	92.16	47	100.00	41	69.49	80.39

Bobwhite repro, Methoxyfenozide, MRID 456528-01
PRINTOUT OF RAW DATA (continued)

Obs	TRT	NH_LE	HS	HS_ES	HS_NH	THICK	HATWT	SURVWT	FOOD	WTGAINM	WTGAINF
1	Ctrl	96.88	29	74.36	93.55	0.22	6	29	18	-2	54
2	Ctrl	92.86	38	70.37	97.44	0.25	7	31	20	10	45
3	Ctrl	100.00	22	88.00	91.67	0.25	7	27	17	32	30
4	Ctrl	87.50	11	68.75	78.57	0.23	7	27	16	14	49
5	Ctrl	94.44	17	89.47	100.00	0.21	7	26	15	2	22
6	Ctrl	100.00	31	96.88	96.88	0.22	6	30	15	11	47
7	Ctrl	93.94	30	88.24	96.77	0.24	7	30	18	8	49
8	Ctrl	85.71	26	70.27	86.67	0.21	6	31	17	18	30
9	Ctrl	97.50	39	95.12	100.00	0.20	7	27	18	24	58
10	Ctrl	100.00	31	100.00	100.00	0.25	7	29	17	13	52
11	Ctrl	89.19	33	82.50	100.00	0.24	6	24	17	14	42
12	Ctrl	100.00	31	96.88	96.88	0.21	7	33	17	20	35
13	Ctrl	89.29	25	86.21	100.00	0.23	7	29	17	27	59
14	Ctrl	100.00	41	93.18	95.35	0.24	7	27	16	3	55
15	Ctrl	100.00	19	79.17	100.00	0.21	7	27	18	4	54
16	Ctrl	100.00	44	93.62	97.78	0.24	7	26	22	37	65
17	Dose1	96.55	27	93.10	96.43	0.24	6	26	15	17	34
18	Dose1	91.43	32	91.43	100.00	0.23	6	26	18	31	45
19	Dose1	100.00	27	84.38	100.00	0.22	6	25	17	8	33
20	Dose1	.	.	.	.	.	.	.	.	.	.
21	Dose1	89.66	25	86.21	96.15	0.23	6	29	19	29	67
22	Dose1	.	.	.	.	.	.	.	.	.	.
23	Dose1	100.00	28	96.55	100.00	0.25	6	26	15	23	38

24	Dose1	.	.	.	.	.	.	.	.	.	.
25	Dose1	97.22	32	86.49	91.43	0.26	6	29	18	35	55
26	Dose1	88.89	6	60.00	75.00	0.20	7	32	17	36	32
27	Dose1	100.00	8	100.00	100.00	0.21	7	27	14	17	34
28	Dose1	100.00	9	47.37	100.00	0.23	6	25	16	15	30
29	Dose1	66.67	2	50.00	100.00	0.22	6	27	16	15	39
30	Dose1	100.00	7	77.78	100.00	0.21	7	33	17	7	2
31	Dose1	100.00	37	97.37	100.00	0.21	7	32	19	26	29
32	Dose1	89.29	25	73.53	100.00	0.22	6	25	17	-2	22
33	Dose2	.	.	.	.	.	.	.	.	.	.
34	Dose2	98.00	48	94.12	97.96	0.22	7	32	18	24	46
35	Dose2	85.29	28	80.00	96.55	0.20	7	26	16	18	40
36	Dose2	92.68	36	87.80	94.74	0.24	7	30	18	43	55
37	Dose2	96.00	24	96.00	100.00	0.22	7	31	16	14	50
38	Dose2	85.71	6	54.55	100.00	0.25	6	23	17	19	36
39	Dose2	90.00	25	64.10	92.59	0.24	6	25	16	27	44
40	Dose2	95.00	19	70.37	100.00	0.22	7	27	17	3	31
41	Dose2	100.00	23	95.83	100.00	0.23	6	23	15	13	48
42	Dose2	96.08	49	90.74	100.00	0.25	7	31	20	37	57
43	Dose2	97.22	35	97.22	100.00	0.25	7	31	16	7	40
44	Dose2	95.45	20	90.91	95.24	0.24	7	29	15	-1	32
45	Dose2	93.55	28	80.00	96.55	0.23	6	22	15	24	42
46	Dose2	87.50	28	87.50	100.00	0.22	6	28	15	14	34
47	Dose2	100.00	3	100.00	100.00	0.24	6	27	15	21	30
48	Dose2	100.00	27	96.43	100.00	0.24	7	31	16	12	37
49	Dose3	100.00	55	100.00	100.00	0.23	7	31	21	20	86
50	Dose3	95.83	46	85.19	100.00	0.22	7	34	19	17	50
51	Dose3	100.00	12	85.71	85.71	0.22	6	21	17	15	28
52	Dose3	100.00	36	100.00	100.00	0.24	7	29	18	14	47
53	Dose3	91.67	11	78.57	100.00	0.23	7	32	17	10	15
54	Dose3	97.22	35	89.74	100.00	0.21	6	31	18	17	52
55	Dose3	100.00	16	66.67	94.12	0.22	7	32	19	33	35
56	Dose3	100.00	2	66.67	66.67	0.20	5	17	15	25	33
57	Dose3	90.48	18	81.82	94.74	0.24	6	21	17	12	32
58	Dose3	100.00	23	92.00	100.00	0.23	7	29	16	17	44
59	Dose3	85.71	5	62.50	83.33	0.23	6	27	16	43	23
60	Dose3	94.12	32	94.12	100.00	0.24	7	30	16	14	47
61	Dose3	100.00	18	66.67	94.74	0.22	7	28	19	17	14
62	Dose3	100.00	31	93.94	93.94	0.25	6	29	17	29	35
63	Dose3	87.23	39	75.00	95.12	0.23	7	33	19	11	35
64	Dose3	86.05	36	78.26	97.30	0.24	8	36	18	3	47
65	Dose4	94.74	18	85.71	100.00	0.22	7	24	17	32	36
66	Dose4	100.00	2	50.00	100.00	0.21	7	29	15	11	40
67	Dose4	97.30	36	94.74	100.00	0.24	7	30	17	31	56
68	Dose4	100.00	20	62.50	95.24	0.22	6	28	17	19	30
69	Dose4	83.33	19	59.38	95.00	0.24	7	30	20	14	44
70	Dose4	83.33	15	55.56	100.00	0.22	6	29	17	19	31
71	Dose4	86.00	41	73.21	95.35	0.23	7	33	22	13	41
72	Dose4	85.71	18	52.94	100.00	0.22	6	29	17	29	55
73	Dose4	94.87	36	85.71	97.30	0.22	6	25	16	37	26
74	Dose4	97.14	30	78.95	88.24	0.21	6	26	16	8	52
75	Dose4	93.18	40	88.89	97.56	0.25	7	29	18	21	51
76	Dose4	100.00	23	85.19	92.00	0.23	6	28	17	41	34
77	Dose4	88.57	29	78.38	93.55	0.22	6	25	15	12	40
78	Dose4	97.73	43	97.73	100.00	0.22	6	29	18	3	39

79	Dose4	88.89	24	88.89	100.00	0.26	7	30	16	34	68
80	Dose4	87.23	41	80.39	100.00	0.26	7	35	21	27	31

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE EL (Eggs Laid)

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.985	0.485	0.821	0.516	USE PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval	
Ctrl	16	40.38	11.45	2.86	28.37	34.27,	46.48
Dose1	13	30.62	14.85	4.12	48.51	21.64,	39.59
Dose2	15	36.27	14.34	3.70	39.54	28.33,	44.21
Dose3	16	34.94	17.20	4.30	49.23	25.77,	44.10
Dose4	16	39.69	14.06	3.52	35.43	32.20,	47.18

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	39.50	21.00	59.00	.	.
Dose1	37.00	6.00	52.00	75.83	24.17
Dose2	37.00	5.00	59.00	89.82	10.18
Dose3	35.00	5.00	62.00	86.53	13.47
Dose4	40.50	5.00	64.00	98.30	1.70

****

PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Analysis of Variance (ANOVA) - overall F-test

Numerator df	Denominator df	F-stat	P-value
4	71	1.06	0.381

Dunnett - testing each trt mean signif. less than control
Williams - test assumes dose-response relationship, testing negative trend
Tukey - two-sided tests, all possible comparisons, not used for NOEC or LOEC

Level	Mean	Dunnett p-value	Isotonic mean	Williams p-value	Tukey p-values Dose1	Dose2	Dose3	Dose4	Dose5
Ctrl	40.38	.	40.38	.	0.379	0.933	0.825	1.000	.
Dose1	30.62	0.113	35.60	0.227	.	0.841	0.930	0.454	.
Dose2	36.27	0.475	35.60	0.231	.	.	0.999	0.965	.
Dose3	34.94	0.353	35.60	0.234	.	.	.	0.885	.
Dose4	39.69	0.759	35.60	0.239	.	.	.	.	.

SUMMARY	NOEC	LOEC
Dunnett	Dose4	>highest dose
Williams	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE NEG_EC (Eggs Cracked)

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.860	<.001	8.978	<.001	USE NON-PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.	Interval
Ctrl	16	1.38	1.59	0.40	115.37	0.53,	2.22
Dose1	13	2.69	3.09	0.86	114.87	0.82,	4.56
Dose2	15	0.67	1.29	0.33	193.65	0.00,	1.38
Dose3	16	0.63	0.89	0.22	141.61	0.15,	1.10
Dose4	16	0.69	1.08	0.27	156.83	0.11,	1.26

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	1.00	0.00	5.00	.	.
Dose1	1.00	0.00	9.00	195.80	-95.80
Dose2	0.00	0.00	4.00	48.48	51.52
Dose3	0.00	0.00	3.00	45.45	54.55
Dose4	0.00	0.00	3.00	50.00	50.00

****

NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	8.01	0.091

MannWhit(Bon) - testing each trt median signif. greater than control
Jonckheere - test assumes dose-response relationship, testing positive trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	1.00	.	.
Dose1	1.00	1.000	0.227
Dose2	0.00	1.000	0.940
Dose3	0.00	1.000	0.968
Dose4	0.00	1.000	0.978

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE ENC_EL ((EL-EC)/EL (%))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.857	<.001	10.317	<.001	USE NON-PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval	
Ctrl	16	96.62	3.89	0.97	4.03	94.54,	98.69
Dose1	13	91.35	9.41	2.61	10.30	85.67,	97.04
Dose2	15	98.30	3.23	0.83	3.29	96.51,	100.00
Dose3	16	97.63	3.56	0.89	3.64	95.73,	99.52
Dose4	16	98.67	2.00	0.50	2.03	97.60,	99.74

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	97.73	86.84	100.00	.	.
Dose1	92.86	70.00	100.00	94.55	5.45
Dose2	100.00	90.63	100.00	101.74	-1.74
Dose3	100.00	89.47	100.00	101.04	-1.04
Dose4	100.00	93.88	100.00	102.12	-2.12

****

NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	9.26	0.055

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	97.73	.	.
Dose1	92.86	0.508	0.118
Dose2	100.00	1.000	0.918
Dose3	100.00	1.000	0.934
Dose4	100.00	1.000	0.979

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE ES (Eggs Set)

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.985	0.496	1.122	0.353	USE PARAMETRIC TESTS

****
BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.	Interval
Ctrl	16	34.00	10.20	2.55	29.99	28.57,	39.43
Dose1	13	24.08	12.34	3.42	51.25	16.62,	31.53
Dose2	15	30.87	13.43	3.47	43.52	23.43,	38.30
Dose3	16	30.38	16.21	4.05	53.35	21.74,	39.01
Dose4	16	34.69	12.42	3.11	35.82	28.07,	41.31

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	33.00	16.00	54.00	.	.
Dose1	29.00	4.00	38.00	70.81	29.19
Dose2	32.00	3.00	54.00	90.78	9.22
Dose3	30.00	3.00	55.00	89.34	10.66
Dose4	35.50	4.00	56.00	102.02	-2.02

****
PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Analysis of Variance (ANOVA) - overall F-test

Numerator df	Denominator df	F-stat	P-value
4	71	1.45	0.228

Dunnett - testing each trt mean signif. less than control
Williams - test assumes dose-response relationship, testing negative trend
Tukey - two-sided tests, all possible comparisons, not used for NOEC or LOEC

Level	Mean	Dunnett p-value	Isotonic mean	Williams p-value	Tukey p-values Dose1	Dose2	Dose3	Dose4	Dose5
Ctrl	34.00	.	34.00	.	0.263	0.963	0.935	1.000	.
Dose1	24.08	0.073	30.28	0.269	.	0.649	0.699	0.203	.
Dose2	30.87	0.532	30.28	0.276	.	.	1.000	0.926	.
Dose3	30.38	0.478	30.28	0.281	.	.	.	0.884	.
Dose4	34.69	0.850	30.28	0.287	.	.	.	.	.

SUMMARY	NOEC	LOEC
Dunnett	Dose4	>highest dose
Williams	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE ES_EL (EggsSet/EggsLaid (%))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.870	<.001	3.082	0.021	USE NON-PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.	Interval
Ctrl	16	83.87	4.26	1.07	5.08	81.60,	86.15
Dose1	13	77.34	10.72	2.97	13.86	70.86,	83.82
Dose2	15	82.60	8.66	2.24	10.49	77.80,	87.40
Dose3	16	84.19	8.19	2.05	9.73	79.82,	88.55
Dose4	16	86.91	2.68	0.67	3.08	85.48,	88.34

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	84.81	76.19	91.53	.	.
Dose1	79.17	50.00	90.63	92.21	7.79
Dose2	83.72	60.00	91.53	98.48	1.52
Dose3	87.01	60.00	91.53	100.37	-0.37
Dose4	87.75	80.00	90.48	103.62	-3.62

****

NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	10.95	0.027

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	84.81	.	.
Dose1	79.17	0.097	0.019
Dose2	83.72	1.000	0.406
Dose3	87.01	1.000	0.853
Dose4	87.75	1.000	0.989

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE VE (Viable Embryo(d14))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.985	0.494	2.229	0.074	USE PARAMETRIC TESTS

****
BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval
Ctrl	16	31.75	8.99	2.25	28.32	26.96, 36.54
Dose1	13	22.23	12.69	3.52	57.08	14.56, 29.90
Dose2	15	28.87	13.40	3.46	46.42	21.45, 36.29
Dose3	16	28.19	15.92	3.98	56.48	19.70, 36.67
Dose4	16	30.63	13.11	3.28	42.82	23.64, 37.61

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	32.00	16.00	45.00	.	.
Dose1	28.00	3.00	37.00	70.02	29.98
Dose2	30.00	3.00	51.00	90.92	9.08
Dose3	28.00	3.00	55.00	88.78	11.22
Dose4	31.00	2.00	50.00	96.46	3.54

****
PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Analysis of Variance (ANOVA) - overall F-test

Numerator df	Denominator df	F-stat	P-value
4	71	1.11	0.357

Dunnett - testing each trt mean signif. less than control
Williams - test assumes dose-response relationship, testing negative trend
Tukey - two-sided tests, all possible comparisons, not used for NOEC or LOEC

Level	Mean	Dunnett p-value	Isotonic mean	Williams p-value	Tukey p-values Dose1	Dose2	Dose3	Dose4	Dose5
Ctrl	31.75	.	31.75	.	0.297	0.972	0.937	0.999	.
Dose1	22.23	0.084	27.72	0.245	.	0.664	0.737	0.425	.
Dose2	28.87	0.555	27.72	0.250	.	.	1.000	0.996	.
Dose3	28.19	0.482	27.72	0.254	.	.	.	0.984	.
Dose4	30.63	0.717	27.72	0.260	.	.	.	.	.

SUMMARY	NOEC	LOEC
Dunnett	Dose4	>highest dose
Williams	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE VE_ES (ViableEmbryo/EggsSet (%))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.842	<.001	3.218	0.017	USE NON-PARAMETRIC TESTS

****
BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.	Interval
Ctrl	16	93.98	7.50	1.88	7.98	89.99,	97.98
Dose1	13	89.80	15.84	4.39	17.64	80.23,	99.37
Dose2	15	92.53	11.60	3.00	12.54	86.10,	98.96
Dose3	16	92.07	9.69	2.42	10.53	86.90,	97.24
Dose4	16	85.20	15.99	4.00	18.77	76.67,	93.72

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	96.28	77.78	100.00	.	.
Dose1	100.00	47.37	100.00	95.55	4.45
Dose2	98.04	63.64	100.00	98.45	1.55
Dose3	93.88	70.37	100.00	97.96	2.04
Dose4	92.13	50.00	100.00	90.65	9.35

****
NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	3.90	0.420

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	96.28	.	.
Dose1	100.00	1.000	0.625
Dose2	98.04	1.000	0.619
Dose3	93.88	1.000	0.397
Dose4	92.13	0.143	0.063

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE LE (Live Embryo(d21))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.985	0.528	2.163	0.082	USE PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval	
Ctrl	16	31.69	8.90	2.23	28.10	26.94,	36.43
Dose1	13	21.92	12.60	3.49	57.47	14.31,	29.54
Dose2	15	28.80	13.37	3.45	46.42	21.40,	36.20
Dose3	16	28.00	15.70	3.93	56.08	19.63,	36.37
Dose4	16	30.50	13.01	3.25	42.65	23.57,	37.43

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	32.00	16.00	45.00	.	.
Dose1	28.00	3.00	37.00	69.19	30.81
Dose2	30.00	3.00	51.00	90.89	9.11
Dose3	28.00	3.00	55.00	88.36	11.64
Dose4	31.00	2.00	50.00	96.25	3.75

****

PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Analysis of Variance (ANOVA) - overall F-test

Numerator df	Denominator df	F-stat	P-value
4	71	1.19	0.322

Dunnett - testing each trt mean signif. less than control
Williams - test assumes dose-response relationship, testing negative trend
Tukey - two-sided tests, all possible comparisons, not used for NOEC or LOEC

Level	Mean	Dunnett p-value	Isotonic mean	Williams p-value	Tukey p-values Dose1	Dose2	Dose3	Dose4	Dose5
Ctrl	31.69	.	31.69	.	0.265	0.971	0.927	0.999	.
Dose1	21.92	0.073	27.55	0.235	.	0.626	0.716	0.394	.
Dose2	28.80	0.552	27.55	0.240	.	.	1.000	0.996	.
Dose3	28.00	0.466	27.55	0.243	.	.	.	0.982	.
Dose4	30.50	0.711	27.55	0.249	.	.	.	.	.

SUMMARY	NOEC	LOEC
Dunnett	Dose4	>highest dose
Williams	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE LE_VE (LiveEmbryo/ViableEmbryo (%))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.586	<.001	7.415	<.001	USE NON-PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval
Ctrl	16	99.86	0.57	0.14	0.57	99.56, 100.00
Dose1	13	98.48	2.92	0.81	2.96	96.72, 100.00
Dose2	15	99.81	0.74	0.19	0.74	99.40, 100.00
Dose3	16	99.59	1.19	0.30	1.20	98.96, 100.00
Dose4	16	99.70	0.83	0.21	0.83	99.25, 100.00

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	100.00	97.73	100.00	.	.
Dose1	100.00	90.00	100.00	98.62	1.38
Dose2	100.00	97.14	100.00	99.95	0.05
Dose3	100.00	95.56	100.00	99.74	0.26
Dose4	100.00	97.37	100.00	99.84	0.16

****

NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	5.43	0.246

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	100.00	.	.
Dose1	100.00	1.000	0.034
Dose2	100.00	1.000	0.442
Dose3	100.00	1.000	0.509
Dose4	100.00	1.000	0.562

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE NH (Number Hatched)

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.988	0.679	1.860	0.127	USE PARAMETRIC TESTS

****
BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf. Interval
Ctrl	16	30.31	8.87	2.22	29.28	25.58, 35.04
Dose1	13	20.92	12.20	3.38	58.32	13.55, 28.30
Dose2	15	27.13	12.83	3.31	47.28	20.03, 34.24
Dose3	16	26.69	14.90	3.73	55.84	18.75, 34.63
Dose4	16	28.06	12.00	3.00	42.77	21.67, 34.46

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	31.00	14.00	45.00	.	.
Dose1	26.00	2.00	37.00	69.02	30.98
Dose2	27.00	3.00	49.00	89.51	10.49
Dose3	27.50	3.00	55.00	88.04	11.96
Dose4	28.00	2.00	43.00	92.58	7.42

****
PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Analysis of Variance (ANOVA) - overall F-test

Numerator df	Denominator df	F-stat	P-value
4	71	1.11	0.358

Dunnett - testing each trt mean signif. less than control
Williams - test assumes dose-response relationship, testing negative trend
Tukey - two-sided tests, all possible comparisons, not used for NOEC or LOEC

Level	Mean	Dunnett p-value	Isotonic mean	Williams p-value	Tukey p-values Dose1	Dose2	Dose3	Dose4	Dose5
Ctrl	30.31	.	30.31	.	0.257	0.952	0.920	0.985	.
Dose1	20.92	0.071	25.92	0.204	.	0.673	0.720	0.532	.
Dose2	27.13	0.508	25.92	0.207	.	.	1.000	1.000	.
Dose3	26.69	0.455	25.92	0.208	.	.	.	0.998	.
Dose4	28.06	0.600	25.92	0.213	.	.	.	.	.

SUMMARY	NOEC	LOEC
Dunnett	Dose4	>highest dose
Williams	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE NH_EL (NumberHatched/EggsLaid (%))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.945	0.002	2.064	0.095	USE NON-PARAMETRIC TESTS

****
BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval
Ctrl	16	75.08	7.76	1.94	10.33	70.95, 79.21
Dose1	13	64.60	17.39	4.82	26.93	54.09, 75.11
Dose2	15	72.10	13.09	3.38	18.16	64.85, 79.34
Dose3	16	73.61	10.95	2.74	14.88	67.77, 79.44
Dose4	16	68.39	14.66	3.66	21.43	60.58, 76.20

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	75.09	63.27	86.11	.	.
Dose1	71.15	33.33	85.37	86.04	13.96
Dose2	75.00	37.50	87.50	96.03	3.97
Dose3	74.87	56.67	90.00	98.04	1.96
Dose4	72.90	40.00	86.00	91.09	8.91

****
NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	3.54	0.472

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	75.09	.	.
Dose1	71.15	0.188	0.040
Dose2	75.00	1.000	0.284
Dose3	74.87	1.000	0.466
Dose4	72.90	0.616	0.283

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE NH_ES (NumberHatched/EggsSet (%))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.915	<.001	1.974	0.108	USE NON-PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval	
Ctrl	16	89.59	8.77	2.19	9.79	84.91,	94.26
Dose1	13	83.02	17.32	4.80	20.86	72.55,	93.48
Dose2	15	87.19	13.10	3.38	15.02	79.93,	94.44
Dose3	16	87.59	10.92	2.73	12.47	81.77,	93.41
Dose4	16	78.50	15.94	3.99	20.31	70.00,	86.99

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	90.33	72.22	100.00	.	.
Dose1	89.66	47.37	100.00	92.66	7.34
Dose2	92.68	54.55	100.00	97.32	2.68
Dose3	88.05	70.37	100.00	97.77	2.23
Dose4	84.75	50.00	97.73	87.62	12.38

****

NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	5.11	0.277

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	90.33	.	.
Dose1	89.66	0.923	0.221
Dose2	92.68	1.000	0.390
Dose3	88.05	1.000	0.442
Dose4	84.75	0.105	0.054

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE NH_LE (NumberHatched/LiveEmbryo (%))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.868	<.001	1.216	0.312	USE NON-PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval
Ctrl	16	95.46	5.14	1.29	5.39	92.72, 98.20
Dose1	13	93.82	9.37	2.60	9.99	88.16, 99.48
Dose2	15	94.17	5.00	1.29	5.31	91.40, 96.94
Dose3	16	95.52	5.54	1.38	5.80	92.57, 98.47
Dose4	16	92.38	6.13	1.53	6.64	89.11, 95.64

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	97.19	85.71	100.00	.	.
Dose1	97.22	66.67	100.00	98.29	1.71
Dose2	95.45	85.29	100.00	98.65	1.35
Dose3	98.61	85.71	100.00	100.07	-0.07
Dose4	93.96	83.33	100.00	96.77	3.23

****

NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	4.23	0.376

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	97.19	.	.
Dose1	97.22	1.000	0.491
Dose2	95.45	0.767	0.188
Dose3	98.61	1.000	0.467
Dose4	93.96	0.281	0.097

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE HS (Hatching Survival(d14))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.988	0.723	1.759	0.147	USE PARAMETRIC TESTS

****
BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval
Ctrl	16	29.19	9.02	2.26	30.90	24.38, 33.99
Dose1	13	20.38	12.05	3.34	59.09	13.11, 27.66
Dose2	15	26.60	12.62	3.26	47.44	19.61, 33.59
Dose3	16	25.94	15.11	3.78	58.27	17.88, 33.99
Dose4	16	27.19	11.72	2.93	43.11	20.94, 33.43

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	30.50	11.00	44.00	.	.
Dose1	25.00	2.00	37.00	69.84	30.16
Dose2	27.00	3.00	49.00	91.13	8.87
Dose3	27.00	2.00	55.00	88.87	11.13
Dose4	26.50	2.00	43.00	93.15	6.85

****
PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Analysis of Variance (ANOVA) - overall F-test

Numerator df	Denominator df	F-stat	P-value
4	71	1.00	0.415

Dunnett - testing each trt mean signif. less than control
Williams - test assumes dose-response relationship, testing negative trend
Tukey - two-sided tests, all possible comparisons, not used for NOEC or LOEC

Level	Mean	Dunnett p-value	Isotonic mean	Williams p-value	Tukey p-values Dose1	Dose2	Dose3	Dose4	Dose5
Ctrl	29.19	.	29.19	.	0.315	0.977	0.944	0.990	.
Dose1	20.38	0.090	25.23	0.234	.	0.669	0.744	0.575	.
Dose2	26.60	0.568	25.23	0.238	.	.	1.000	1.000	.
Dose3	25.94	0.493	25.23	0.241	.	.	.	0.998	.
Dose4	27.19	0.625	25.23	0.247	.	.	.	.	.

SUMMARY	NOEC	LOEC
Dunnett	Dose4	>highest dose
Williams	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE HS_ES (HatchingSurvival/EggsSet (%))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.937	<.001	1.334	0.266	USE NON-PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.	Interval
Ctrl	16	85.81	10.42	2.61	12.15	80.26,	91.37
Dose1	13	80.32	17.77	4.93	22.12	69.59,	91.06
Dose2	15	85.70	13.44	3.47	15.68	78.26,	93.15
Dose3	16	82.30	12.33	3.08	14.98	75.73,	88.87
Dose4	16	76.13	15.39	3.85	20.22	67.93,	84.34

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	88.12	68.75	100.00	.	.
Dose1	86.21	47.37	100.00	93.60	6.40
Dose2	90.74	54.55	100.00	99.87	0.13
Dose3	83.50	62.50	100.00	95.91	4.09
Dose4	79.67	50.00	97.73	88.72	11.28

****

NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	4.98	0.289

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	88.12	.	.
Dose1	86.21	1.000	0.270
Dose2	90.74	1.000	0.585
Dose3	83.50	0.764	0.305
Dose4	79.67	0.154	0.045

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	**Dose4**	**>highest dose**
Jonckheere	Dose3	Dose4

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE HS_NH (HatchingSurvival/NumberHatched (%))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.744	<.001	1.702	0.159	USE NON-PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval
Ctrl	16	95.72	5.88	1.47	6.14	92.59, 98.85
Dose1	13	96.85	7.05	1.96	7.28	92.59, 100.00
Dose2	15	98.24	2.49	0.64	2.54	96.86, 99.62
Dose3	16	94.10	8.92	2.23	9.48	89.35, 98.86
Dose4	16	97.14	3.61	0.90	3.72	95.21, 99.06

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	97.16	78.57	100.00	.	.
Dose1	100.00	75.00	100.00	101.18	-1.18
Dose2	100.00	92.59	100.00	102.63	-2.63
Dose3	96.21	66.67	100.00	98.31	1.69
Dose4	98.78	88.24	100.00	101.48	-1.48

****

NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	3.70	0.449

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	97.16	.	.
Dose1	100.00	1.000	0.881
Dose2	100.00	1.000	0.881
Dose3	96.21	1.000	0.388
Dose4	98.78	1.000	0.426

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE THICK (Eggshell thickness)

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.986	0.574	0.914	0.461	USE PARAMETRIC TESTS

****
BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.	Interval
Ctrl	16	0.23	0.02	0.00	7.63	0.22,	0.24
Dose1	13	0.22	0.02	0.00	7.41	0.21,	0.23
Dose2	15	0.23	0.01	0.00	6.18	0.22,	0.24
Dose3	16	0.23	0.01	0.00	5.55	0.22,	0.23
Dose4	16	0.23	0.02	0.00	7.16	0.22,	0.24

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	0.23	0.20	0.25	.	.
Dose1	0.22	0.20	0.26	98.99	1.01
Dose2	0.24	0.20	0.25	101.97	-1.97
Dose3	0.23	0.20	0.25	100.19	-0.19
Dose4	0.22	0.21	0.26	100.66	-0.66

****
PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Analysis of Variance (ANOVA) - overall F-test

Numerator df	Denominator df	F-stat	P-value
4	71	0.36	0.837

Dunnett - testing each trt mean signif. less than control
Williams - test assumes dose-response relationship, testing negative trend
Tukey - two-sided tests, all possible comparisons, not used for NOEC or LOEC

Level	Mean	Dunnett p-value	Isotonic mean	Williams p-value	Tukey p-values Dose1	Dose2	Dose3	Dose4	Dose5
Ctrl	0.23	.	0.23	.	0.995	0.929	1.000	0.999	.
Dose1	0.22	0.654	0.23	0.648	.	0.779	0.990	0.965	.
Dose2	0.23	0.965	0.23	0.686	.	.	0.951	0.984	.
Dose3	0.23	0.830	0.23	0.706	.	.	.	1.000	.
Dose4	0.23	0.882	0.23	0.718	.	.	.	.	.

SUMMARY	NOEC	LOEC
Dunnett	Dose4	>highest dose
Williams	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE HATWT (Hatchling Weight)

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.897	<.001	2.220	0.075	USE NON-PARAMETRIC TESTS

****
BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval	
Ctrl	16	6.75	0.45	0.11	6.63	6.51,	6.99
Dose1	13	6.31	0.48	0.13	7.62	6.02,	6.60
Dose2	15	6.60	0.51	0.13	7.68	6.32,	6.88
Dose3	16	6.63	0.72	0.18	10.85	6.24,	7.01
Dose4	16	6.50	0.52	0.13	7.94	6.22,	6.78

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	7.00	6.00	7.00	.	.
Dose1	6.00	6.00	7.00	93.45	6.55
Dose2	7.00	6.00	7.00	97.78	2.22
Dose3	7.00	5.00	8.00	98.15	1.85
Dose4	6.50	6.00	7.00	96.30	3.70

****
NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	5.82	0.213

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	7.00	.	.
Dose1	6.00	0.056	0.010
Dose2	7.00	1.000	0.186
Dose3	7.00	1.000	0.424
Dose4	6.50	0.334	0.290

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE SURVWT (Survivor Wt (d14))

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.974	0.121	1.921	0.116	USE PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval	
Ctrl	16	28.31	2.33	0.58	8.23	27.07,	29.55
Dose1	13	27.85	2.88	0.80	10.35	26.10,	29.59
Dose2	15	27.73	3.35	0.86	12.07	25.88,	29.59
Dose3	16	28.75	5.12	1.28	17.80	26.02,	31.48
Dose4	16	28.69	2.85	0.71	9.92	27.17,	30.20

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	28.00	24.00	33.00	.	.
Dose1	27.00	25.00	33.00	98.35	1.65
Dose2	28.00	22.00	32.00	97.95	2.05
Dose3	29.50	17.00	36.00	101.55	-1.55
Dose4	29.00	24.00	35.00	101.32	-1.32

****

PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Analysis of Variance (ANOVA) - overall F-test

Numerator df	Denominator df	F-stat	P-value
4	71	0.27	0.894

Dunnett - testing each trt mean signif. less than control
Williams - test assumes dose-response relationship, testing negative trend
Tukey - two-sided tests, all possible comparisons, not used for NOEC or LOEC

Level	Mean	Dunnett p-value	Isotonic mean	Williams p-value	Tukey p-values Dose1	Dose2	Dose3	Dose4	Dose5
Ctrl	28.31	.	28.31	.	0.996	0.990	0.996	0.998	.
Dose1	27.85	0.669	28.28	0.574	.	1.000	0.956	0.966	.
Dose2	27.73	0.624	28.28	0.607	.	.	0.925	0.939	.
Dose3	28.75	0.900	28.28	0.626	.	.	.	1.000	.
Dose4	28.69	0.889	28.28	0.638	.	.	.	.	.

SUMMARY	NOEC	LOEC
Dunnett	Dose4	>highest dose
Williams	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE FOOD (Food Consumption)

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.943	0.002	0.261	0.902	USE NON-PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.	Interval
Ctrl	16	17.38	1.75	0.44	10.05	16.44,	18.31
Dose1	13	16.77	1.54	0.43	9.16	15.84,	17.70
Dose2	15	16.33	1.45	0.37	8.86	15.53,	17.13
Dose3	16	17.63	1.54	0.39	8.76	16.80,	18.45
Dose4	16	17.44	2.00	0.50	11.46	16.37,	18.50

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	17.00	15.00	22.00	.	.
Dose1	17.00	14.00	19.00	96.51	3.49
Dose2	16.00	15.00	20.00	94.00	6.00
Dose3	17.50	15.00	21.00	101.44	-1.44
Dose4	17.00	15.00	22.00	100.36	-0.36

****

NON-PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Kruskal-Wallis test - equality among treatment groups

Degrees of Freedom	TestStat	P-value
4	6.94	0.139

MannWhit(Bon) - testing each trt median signif. less than control
Jonckheere - test assumes dose-response relationship, testing negative trend

Level	Median	MannWhit(Bon adjust)p-value	Jonckheere p-value
Ctrl	17.00	.	.
Dose1	17.00	1.000	0.235
Dose2	16.00	0.133	0.032
Dose3	17.50	1.000	0.611
Dose4	17.00	1.000	0.694

SUMMARY	NOEC	LOEC
MannWhit (Bonf adjust)	Dose4	>highest dose
Jonckheere	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE WTGAINM (Male wt gain)

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.980	0.281	0.380	0.822	USE PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.	Interval
Ctrl	16	14.69	11.10	2.78	75.60	8.77,	20.60
Dose1	13	19.77	11.52	3.19	58.27	12.81,	26.73
Dose2	15	18.33	11.79	3.05	64.33	11.80,	24.86
Dose3	16	18.56	9.79	2.45	52.75	13.35,	23.78
Dose4	16	21.94	11.33	2.83	51.67	15.90,	27.98

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	13.50	-2.00	37.00	.	.
Dose1	17.00	-2.00	36.00	134.60	-34.60
Dose2	18.00	-1.00	43.00	124.82	-24.82
Dose3	17.00	3.00	43.00	126.38	-26.38
Dose4	20.00	3.00	41.00	149.36	-49.36

****

PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Analysis of Variance (ANOVA) - overall F-test

Numerator df	Denominator df	F-stat	P-value
4	71	0.90	0.471

Dunnett - testing each trt mean signif. less than control
Williams - test assumes dose-response relationship, testing negative trend
Tukey - two-sided tests, all possible comparisons, not used for NOEC or LOEC

Level	Mean	Dunnett p-value	Isotonic mean	Williams p-value	Tukey p-values Dose1	Dose2	Dose3	Dose4	Dose5
Ctrl	14.69	.	18.62	.	0.737	0.891	0.860	0.356	.
Dose1	19.77	0.989	18.62	0.895	.	0.997	0.998	0.985	.
Dose2	18.33	0.974	18.62	0.924	.	.	1.000	0.895	.
Dose3	18.56	0.979	18.62	0.937	.	.	.	0.911	.
Dose4	21.94	0.999	18.62	0.943	.	.	.	.	.

SUMMARY	NOEC	LOEC
Dunnett	Dose4	>highest dose
Williams	Dose4	>highest dose

Bobwhite repro, Methoxyfenozide, MRID 456528-01
ANALYSIS RESULTS FOR VARIABLE WTGAINF (Female wt gain)

TESTS OF ASSUMPTIONS FOR PARAMETRIC ANALYSIS
Shapiro-Wilks test for Normality of Residuals -- alpha-level=0.01
Levenes test for homogeneity of variance(absolute residuals) -- alpha-level=0.05
Use parametric analyses if neither test rejected, otherwise non-parametric analyses.

Shapiro-Wilks Test Stat	Shapiro-Wilks P-value	Levenes Test Stat	Levenes P-value	Conclusion
0.971	0.078	0.907	0.465	USE PARAMETRIC TESTS

****

BASIC SUMMARY STATISTICS

Level	N	Mean	StdDev	StdErr	Coef of Var	95% Conf.Interval	
Ctrl	16	46.63	11.99	3.00	25.72	40.23,	53.02
Dose1	13	35.38	15.49	4.30	43.79	26.02,	44.75
Dose2	15	41.47	8.48	2.19	20.46	36.77,	46.17
Dose3	16	38.94	17.18	4.29	44.12	29.78,	48.09
Dose4	16	42.13	11.51	2.88	27.31	35.99,	48.26

Level	Median	Min	Max	%of Control(means)	%Reduction(means)
Ctrl	49.00	22.00	65.00	.	.
Dose1	34.00	2.00	67.00	75.89	24.11
Dose2	40.00	30.00	57.00	88.94	11.06
Dose3	35.00	14.00	86.00	83.51	16.49
Dose4	40.00	26.00	68.00	90.35	9.65

****

PARAMETRIC ANALYSES - use alpha-level=0.05 for all tests
Analysis of Variance (ANOVA) - overall F-test

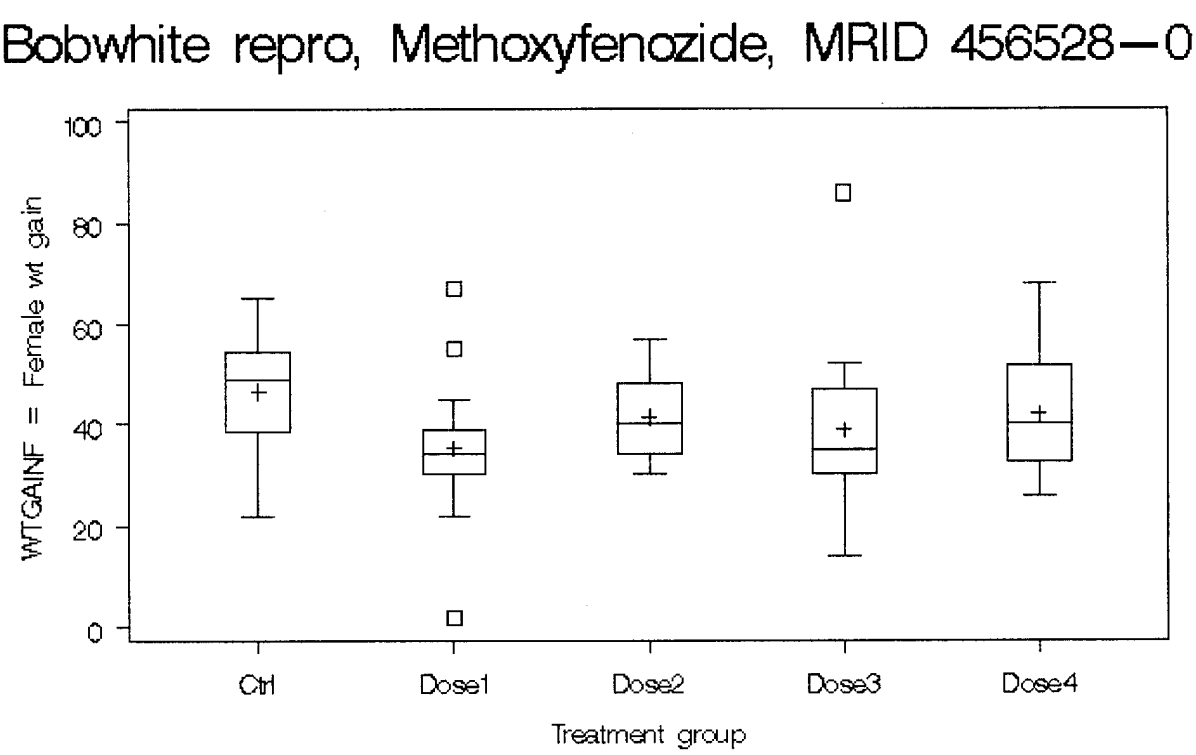
Numerator df	Denominator df	F-stat	P-value
4	71	1.43	0.232

Dunnett - testing each trt mean signif. less than control
Williams - test assumes dose-response relationship, testing negative trend
Tukey - two-sided tests, all possible comparisons, not used for NOEC or LOEC

Level	Mean	Dunnett p-value	Isotonic mean	Williams p-value	Tukey p-values Dose1	Dose2	Dose3	Dose4	Dose5
Ctrl	46.63	.	46.63	.	0.166	0.814	0.476	0.872	.
Dose1	35.38	0.043	39.65	0.096	.	0.745	0.952	0.653	.
Dose2	41.47	0.344	39.65	0.092	.	.	0.984	1.000	.
Dose3	38.94	0.151	39.65	0.090	.	.	.	0.960	.
Dose4	42.13	0.397	39.65	0.092	.	.	.	.	.

SUMMARY	NOEC	LOEC
Dunnett	<lowest dose	Dose1
Williams	Dose4	>highest dose

Box Plot:


Bobwhite repro, Methoxyfenozide, MRID 456528-01
WTGAINF = Female wt gain
100
80
60
40
20
0
Ctrl
Dose1
Dose2
Dose3
Dose4
Treatment group